DERWENT-ACC-NO: 1999-156880

DERWENT-WEEK: 199914

TITLE: **Electrical** resistance type **incinerator** for burning organic refuse from kitchen and medical **waste** - has heater filled with granular **carbon** heated by **electrode** plates for heat transfer through side wall to **incineration** chamber formed in heat resistant insulation receptacle

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PRIORITY-DATA: 1997JP-0167680 (June 24, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
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ABSTRACTED-PUB-NO: JP 11014022A

BASIC-ABSTRACT:

NOVELTY - A pair of electrode plates (3a,3b) are arranged in mutually opposite surface of a heat resistant insulation receptacle (2). A side wall (5) is provided for heat transfer. One side (4a) of the side wall consists of a heat resistant insulating material. Another side (4b) of the side wall forms an opposing surface which consists of a heat resistant heat insulating

material.
An incineration chamber (8) formed with a heat resistant insulation receptacle
(9), uses the side wall for heat transfer of a heater (1) which is provided as
one side wall and filled with grain (6) of carbon.

USE - For burning organic refuse generated from kitchen and hospital waste.

ADVANTAGE - Enables efficient and cost effective incineration process by using
granular, carbon as source of heat. Facilitates easy combustion of carbon gas
generated during incineration. DESCRIPTION OF DRAWING(S) - The drawing shows
schematic plan view of incinerator. (1) Heater; (2) Heat resistant insulated
receptacle; (3a,3b) **Electrode** plates; (4a,4b) Side walls; (5) Side wall for
heat transfer; (6) Grain of **carbon**; (8) Incineration chamber; (9) Heat
resistant insulation receptacle.

CHOSEN-DRAWING: Dwg.1/7

TITLE-TERMS: **ELECTRIC** RESISTANCE TYPE **INCINERATION** BURN ORGANIC REFUSE KITCHEN
MEDICAL **WASTE** HEATER FILLED GRANULE **CARBON** HEAT **ELECTRODE** PLATE
HEAT TRANSFER THROUGH SIDE WALL **INCINERATION** CHAMBER FORMING HEAT
RESISTANCE INSULATE RECEPTACLE

DERWENT-CLASS: J09 Q73

CPI-CODES: J09-C;

SECONDARY-ACC-NO:
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審査請求　未請求　請求項の数４　ＯＬ　（全 6 頁）

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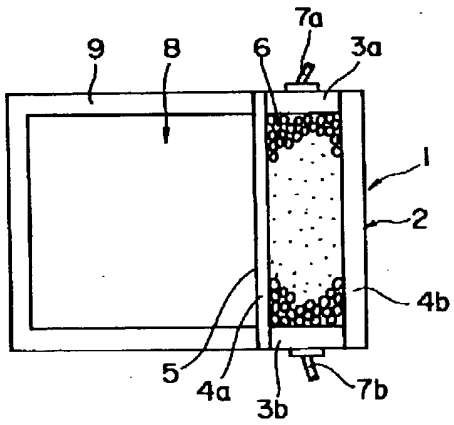
(54)【発明の名称】　電気抵抗式乾留減容炉

(57)【要約】

【課題】　安いコストで乾留減容を効率よく行わせることができる電気抵抗式乾留減容炉を提供する。

【解決手段】　耐熱性絶縁容器２の一方の対向面に電極板３ａ，３ｂをそれぞれ配置し他方の対向面を形成する耐熱性絶縁材からなる側壁４ａ，４ｂのうちの一方または両方の側壁を伝熱可能な側壁５とし、内部にカーボン物質の粒子６を充填した発熱体１と、前記発熱体１の伝熱可能な側壁５を一側壁とする耐熱性絶縁容器９により形成される乾留室８とからなる構成とした。



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【特許請求の範囲】

【請求項1】　耐熱性絶縁容器の一方の対向面に電極板をそれぞれ配置し他方の対向面を形成する耐熱性絶縁材からなる側壁のうちの一方または両方の側壁を伝熱可能な側壁とし、内部にカーボン物質の粒子を充填した発熱体と、前記発熱体の伝熱可能な側壁を一側壁とする耐熱性絶縁容器により形成される乾留室とからなる電気抵抗式乾留減容炉。

【請求項2】　乾留室となる耐熱性絶縁容器の一側壁を形成する発熱体の伝熱可能な側壁に発熱体内と乾留室とを連通する連通穴を形成したこ請求項1記載の電気抵抗式乾留減容炉。

【請求項3】　乾留室となる耐熱性絶縁容器の底部に耐熱性絶縁容器の一方の対向面に電極板をそれぞれ配置し内部にカーボン物質の粒子を充填した発熱体を設けた請求項1または2記載の電気抵抗式乾留減容炉。

【請求項4】　乾留室となる耐熱性絶縁容器の底部には、乾留室と乾留室の下方の発熱体内とを連通する連通穴を形成した請求項3記載の電気抵抗式乾留減容炉。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、厨房等から発生する生ごみや医療用廃棄物等を乾留して。減容する電気抵抗式乾留減容炉に関するものである。

【0002】

【従来の技術】従来の電気抵抗式乾留減容炉は、一般に、炉内または炉外にカンタル線やその他発熱体が装着された構成となっており、この発熱体に通電することにより、炉内の温度を上昇させ、その温度と発熱体から発生するジュール熱を炉内の被減容物が輻射熱として受け取ることによって熱分解をおこして減容するようになっている。

【0003】

【発明が解決しようとする課題】上記従来の電気抵抗式乾留減容炉によれば、一般に発熱体は特殊金属でできているため高価であり、発熱体の取替費用が高額となる。また、発熱体が被減容物や被減容物の乾留に伴い発生する乾留ガスが発熱体に接触するような場合、発熱体が劣化し、耐久性に欠け、発熱体の取替が早まり、コストアップが避けられない。

【0004】本発明の目的は安いコストで乾留減容を効率よく行わせることができる電気抵抗式乾留減容炉を提供することにある。

【0005】本発明の他の目的は、被減容物の乾留に伴い発生した乾留ガスを燃焼させることができる電気抵抗式乾留減容炉を提供することにある。

【0006】

【課題を解決するための手段】請求項1記載の電気抵抗式乾留減容炉は、耐熱性絶縁容器の一方の対向面に電極板をそれぞれ配置し他方の対向面を形成する耐熱性絶縁

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材からなる側壁のうちの一方または両方の側壁を伝熱可能な側壁とし、内部にカーボン物質の粒子を充填した発熱体と、前記発熱体の伝熱可能な側壁を一側壁とする耐熱性絶縁容器により形成される乾留室とからなる構成とした。

【0007】このような構成の電気抵抗式乾留減容炉では、乾留室に生ごみ等の被減容物を投入し、発熱体の両電極間に電圧をかけると、電流は一方の電極板からカーボン物質の粒子層間を通り、他方の電極板に流れることになる。カーボン物質の粒子層に電流が流れると、カーボン物質の粒子同志の接触点で、ある部分ではスパーク放電が発生し、またある部分では高い接触抵抗によってその部分に高いジュール熱が発生する。またカーボン物質の粒子自身も電流と固有抵抗によるジュール熱が発生し、これらが相加わってカーボン物質の粒子の層は高温となり、また高い発熱を生じる。

【0008】前記乾留室に投入された被減容物は、乾留室と発熱体の間を仕切る発熱体の伝熱可能な側壁を通して、発熱体で生じた前記高温と発熱により輻射熱を受けてそれ自身昇温され、先ず水分が蒸発し、次に乾燥部の温度が上昇し、熱分解温度に達してガス化分解をおこす。この作用が被減容物の内部で次々と進行し、ガス化物質が消滅し、最後に炭素分であるチャーが残る。

【0009】請求項2記載の電気抵抗式乾留減容炉は、乾留室となる耐熱性絶縁容器の一側壁を形成する発熱体の伝熱可能な側壁に発熱体内と乾留室とを連通する連通穴を形成した構成とした。

【0010】このような構成の電気抵抗式乾留減容炉では、発熱体と乾留室とを仕切る発熱体の伝熱可能な側壁に形成した連通穴を通して発熱体で生じた前記高温と発熱により輻射熱が連通穴を通して乾留室に伝達されることになり、発熱体で生じた高熱がより効率良く乾留室に伝達されるので、乾留室内の昇温が向上し被減容物のガス化分解が促進される。他方、被減容物のガス化分解により発生した乾留ガスは前記連通穴を通って発熱体内に入り、前記高温となっているカーボン物質の粒子層を通過して上部空間に流れるが、乾留ガスは高温のカーボン物質の粒子層を通過する過程で加熱され高温となって上部空間に流れるので、ここで空気と接触することにより燃焼を起し、燃焼ガスとして排出される。

【0011】請求項3記載の電気抵抗式乾留減容炉は、前記乾留室となる耐熱性絶縁容器の底部に耐熱性絶縁容器の一方の対向面に電極板をそれぞれ配置し内部にカーボン物質の粒子を充填した発熱体を設けた構成とした。

【0012】このような構成の電気抵抗式乾留減容炉では、乾留室の底部にある発熱体で生じた高温と発熱により輻射熱も乾留室の底部を通して乾留室に伝達されることになり、乾留室内の昇温が向上し被減容物のガス化分解が促進される。

【0013】請求項4記載の電気抵抗式乾留減容炉は、

請求項3記載の乾留室の底部に乾留室と乾留室の下方の発熱体内とを連通する連通穴を形成した構成とした。

【0014】このような構成の電気抵抗式乾留減容炉では、乾留室の下方の発熱体で生じた高温と発熱により輻射熱が連通孔を通してより効率良く乾留室に伝達されることになり、乾留室内の昇温が向上し被減容物のガス化分解が一層促進される。

【0015】

【発明の実施の形態】図1は、本発明に係る電気抵抗式乾留減容炉における実施の形態の一例を示すものである。

【0016】図面において、1は発熱体であり、この発熱体1は本例では、セラミック製の耐熱性絶縁容器2の一方の対向面にカーボン製の正負の電極板3a，3bをそれぞれ配置し、他方の対向面を形成する耐熱性絶縁材からなる側壁4a，4bのうちの一方の側壁4aを伝熱可能な側壁5とし、内部にカーボン物質の粒子6を充填し、前記電極板3a，3bの外面には通電導体7a，7bを接続した構造となっている。

【0017】前記カーボン物質としては、木炭，石炭，活性炭，コークス等の加工炭が使用されるが、本例では木炭が使用されている。カーボン物質の粒子6の大きさは5～20mm程度である。

【0018】8は乾留室であり、この乾留室8は前記発熱体1の伝熱可能な側壁5を一側壁とする耐熱性絶縁容器9により形成されている。

【0019】このように構成したので、発熱体1を形成する耐熱性絶縁容器2の対向する両電極板3a，3b間に電圧をかけると、電流は一方の電極板3aからカーボン物質の粒子6層間を通り、他方の電極板3bに流れることになる。カーボン物質の粒子6層に電流が流れると、カーボン物質の粒子5同志の接触点で、ある部分ではスパーク放電が発生し、またある部分では高い接触抵抗によってその部分に高いジュール熱が発生する。またカーボン物質の粒子6自身も電流と固有抵抗によるジュール熱が発生し、これらが相加わってカーボン物質の粒子6の層は高温となり、また高い発熱を生じる。

【0020】そこで、前記乾留室8に生ごみ等の被減容物を投入し、前記電極板3a，3b間に電圧をかけると、乾留室8に投入された被減容物は、乾留室8と発熱体1の間を仕切る発熱体1の伝熱可能な側壁5を通して、発熱体1で生じた前記高温と発熱により輻射熱を受けてそれ自身昇温され、先ず水分が蒸発し、次に乾燥部の温度が上昇し、熱分解温度に達してガス化分解をおこす。この作用が被減容物の内部で次々と進行し、ガス化物質が消滅し、最後に炭素分であるチャーが残る。このチャーは熱源体として再利用できる。

【0021】図2は、本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示すものであり、本例では、前記発熱体1の他方の対向面を形成する耐熱性絶縁

材からなる側壁4a，4bのいずれをも伝熱可能な側壁5とし、発熱体1の両側に、この伝熱可能な側壁5となる側壁4a，4bを一側壁とする耐熱性絶縁容器9により乾留室8を形成している。

【0022】このように構成したので、発熱体1を形成する耐熱性絶縁容器2の対向する両電極板3a，3b間に電圧をかけると、発熱体1の両側の乾留室8に投入された被減容物は、乾留室8と発熱体1の間を仕切る発熱体1の伝熱可能な側壁5となる側壁4a，4b一側壁を通して、発熱体1で生じた前記高温と発熱により輻射熱を受けてそれ自身昇温され、先ず水分が蒸発し、次に乾燥部の温度が上昇し、熱分解温度に達してガス化分解をおこすことになり、大量の被減容物を効率良く乾留減容することができる。

【0023】図3は、本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示すものであり、本例では、前記発熱体1を4個用意し、各発熱体1の他方の対向面を形成する耐熱性絶縁材からなる側壁4a，4bのうちの一方の側壁4aを伝熱可能な側壁5とし、この各発熱体1の伝熱可能な側壁5を四方の側壁とする耐熱性絶縁容器9により乾留室8を形成している。

【0024】このように構成したので、各発熱体1を形成する耐熱性絶縁容器2の対向する両電極板3a，3b間に電圧をかけると、四方の側壁を各発熱体1の伝熱可能な側壁5で形成された乾留室8に投入された被減容物は、四方の伝熱可能な側壁5を通して、各発熱体1で生じた前記高温と発熱により輻射熱を四方から受けることになり、被減容物自身の昇温が促進され、被減容物の乾留減容時間の短縮化を図ることができる。

【0025】前記の図1、図2、図3に示す各実施の形態例にあっては、発熱体1と乾留室8のそれぞれの上部開口部に耐熱性絶縁材よりなる蓋（図示せず）が被せてあり、また発熱体1と乾留室8の外周を断熱材（図示せず）で覆っている。また、乾留室8の上部には、乾留室8で被減容物の乾留により発生した乾留ガスを排出する排出路（図示せず）が設けられている。

【0026】図4、図5は、本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示すものであり、前記図2に示す実施の形態例において、発熱体1の両側の伝熱可能な側壁5に発熱体1内と乾留室8とを連通する連通穴10を形成した。前記乾留室8の開口部には耐熱性絶縁材よりなる蓋11が被せてあり、また発熱体1と乾留室8の外周を断熱材12で覆っている。また、発熱体1の上部には燃焼室13となる空間を形成している。この燃焼室13は外部と連通している。

【0027】このように構成したので、発熱体1と乾留室8とを仕切る発熱体1の伝熱可能な側壁5に形成した連通穴10を通して発熱体1で生じた前記高温と発熱により輻射熱が連通穴10を通して乾留室8に伝達されることになり、発熱体1で生じた高熱がより効率良く乾留

室8に伝達されるので、乾留室8内の昇温が向上し被減容物のガス化分解が促進される。他方、被減容物のガス化分解により発生した乾留ガスは前記連通穴10を通って発熱体1内に入り、前記高温となっているカーボン物質の粒子6層を通過して上部には燃焼室13流れるが、乾留ガスは高温のカーボン物質の粒子6層を通過する過程で加熱され高温となって燃焼室13に流れるので、ここで空気と接触することにより燃焼を起し、燃焼ガスとして排出される。

【0028】本例では、図2に示す実施の形態例における発熱体1の伝熱可能な側壁5に発熱体1内と乾留室8とを連通する連通穴10を形成しているが、図1及び図3に示す実施の形態例における発熱体1の伝熱可能な側壁5に、発熱体1内と乾留室8とを連通する連通穴10を形成してもよく、本例と同様の作用が得られる。

【0029】図6は、本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示すものであり、前記図3に示す実施の形態例において、乾留室8となる耐熱性絶縁容器9の底部14に、耐熱性絶縁容器15の一方の対向面に電極板3a，3bをそれぞれ配置し内部にカーボン物質の粒子6を充填した発熱体16を設けている。

このように構成したので、耐熱性絶縁容器9により形成される乾留室8の底部14にある発熱体16で生じた高温と発熱により輻射熱も乾留室8の底部14を通して乾留室8に伝達されることになり、乾留室8内の昇温が向上し被減容物のガス化分解が促進される。

【0030】本例では、図3に示す実施の形態例における乾留室8の底部14に発熱体16を設けているが、図1及び図2に示す実施の形態例における乾留室8の底部に発熱体16を設けてもよく、本例と同様の作用が得られる。

【0031】図7は、本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示すものであり、前記図6に示す実施の形態例において、乾留室8となる耐熱性絶縁容器9の底部14に、乾留室8と乾留室8の下方の発熱体16内とを連通する連通穴17を形成した。

【0032】このように構成したので、乾留室8の下方の発熱体16で生じた高温と発熱により輻射熱が連通孔17を通してより効率良く乾留室8に伝達されることになり、乾留室8内の昇温が向上し被減容物のガス化分解が一層促進される。

【0033】本例では、図6に示す実施の形態例における乾留室8の底部14に、乾留室8と乾留室8の下方の発熱体16内とを連通する連通穴17を形成しているが、図1及び図2に示す実施の形態例における乾留室8の底部に発熱体16を設け、この底部に乾留室8と乾留室8の下方の発熱体16内とを連通する連通穴を形成してもよく、本例と同様の作用が得られる。

【0034】

【発明の効果】以上のように本発明に係る電気抵抗式乾留減容炉によれば、カーボン物質の粒子を発熱体の発熱源としているので、安いコストで乾留減容を効率よく行わせることができ、また、被減容物の乾留に伴い発生した乾留ガスを容易に燃焼処理することができる。

【図面の簡単な説明】

【図1】本発明に係る電気抵抗式乾留減容炉における実施の形態の一例を示す一部省略平面図。

【図2】本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示す一部省略平面図。

【図3】本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示す一部省略平面図。

【図4】本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示す一部省略一部断面斜視図。

【図5】図4に示す電気抵抗式乾留減容炉の縦断面図。

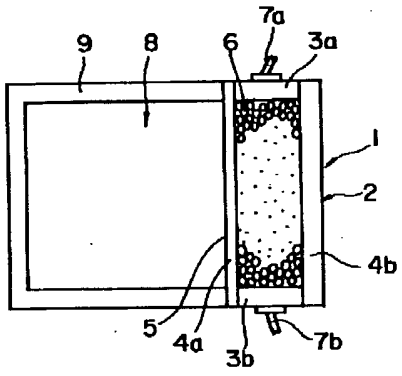
【図6】本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示す一部省略縦断面図。

【図7】本発明に係る電気抵抗式乾留減容炉における実施の形態の他例を示す一部省略縦断面図。

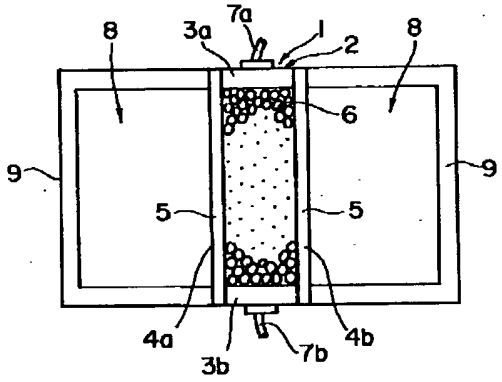
【符号の説明】

1　発熱体
2　耐熱性絶縁容器
3a，3b　電極板
4a，4b　側壁
5　伝熱可能な側壁
6　カーボン物質の粒子
7a，7b　通電導体
8　乾留室
9　耐熱性絶縁容器
10　連通穴
11　蓋
12断熱材
13　燃焼室
14　底部
15　耐熱性絶縁容器
16　発熱体
17　連通穴

【図1】


9
8
6
7a
3a
1
2
4b
5
4a
3b
7b

【図2】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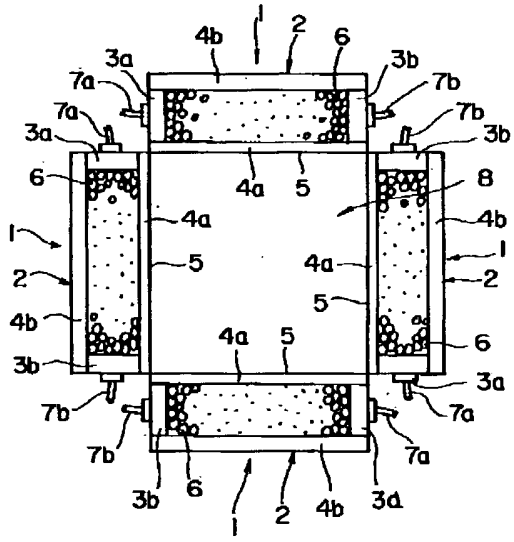
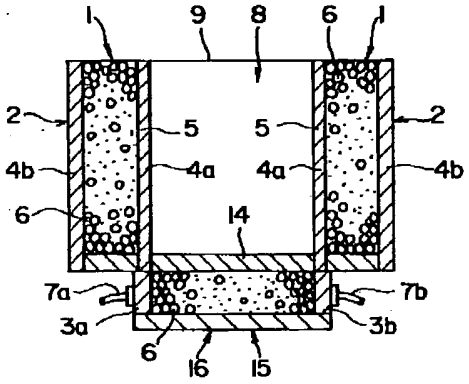
3a
7a
1
2
8
6
9
9
5
5
4a
3b
7b
4b

【図3】


1
2
4b
6
3a
3b
7a
7b
4a
5
8
1
2
4b
6
3b
7b
3a
7a

【図6】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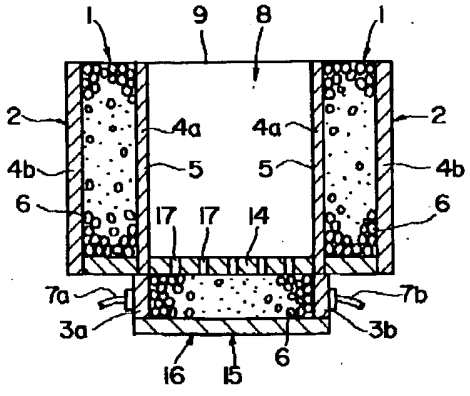
9
8
6
1
2
5
5
2
4b
4a
4a
4b
6
14
7a
7b
3a
3b
6
16
15

【図7】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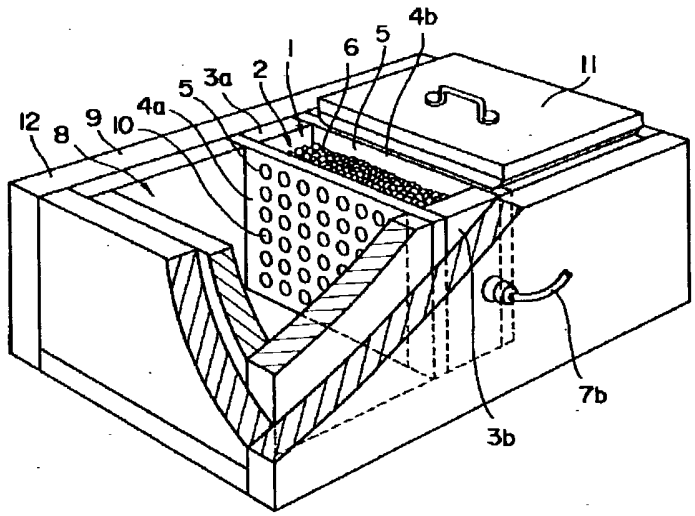
9
8
1
2
4a
4a
2
4b
5
5
4b
6
17
17
14
6
7a
7b
3a
3b
16
15
6

【図4】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3a
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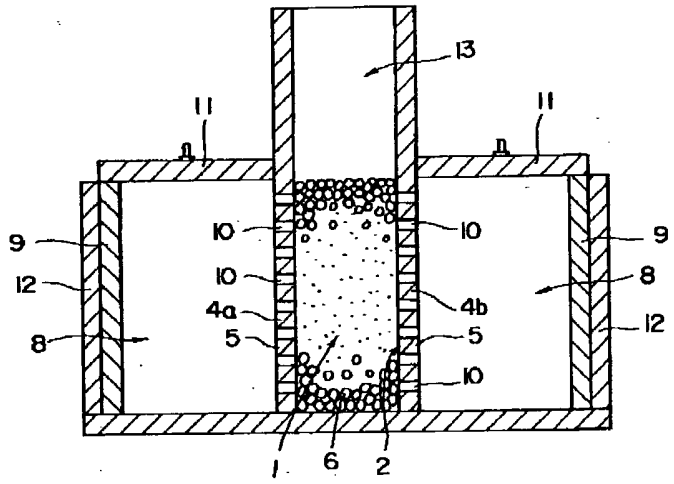
4a
10
9
8
12
11
7b
3b

【図5】


13
11
11
9
12
8
10
10
4a
5
10
10
4b
5
9
8
12
1
6
2

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] This invention distills dryly a kitchen garbage, medical-application trash, etc. which are generated from a kitchen etc. It is related with the electric resistance type dry distillation reduction furnace to reduce.
[0002]
[Description of the Prior Art] By having a kanthal line and the composition of in addition to this having been equipped with the heating element, in a furnace and outside the furnace, and generally, energizing to this heating element, the conventional electric resistance type dry distillation reduction furnace raises the temperature in a furnace, when the object in a furnace reduced the volume receives the Joule's heat generated from that temperature and heating element as radiant heat, causes a pyrolysis and reduces it.
[0003]
[Problem(s) to be Solved by the Invention] According to the above-mentioned conventional electric resistance type dry distillation reduction furnace, generally, since the heating element is made of the special metal, it is expensive, and the replacement costs of a heating element serve as a large sum. Moreover, when the carbonization gas which a heating element generates with dry distillation of the object reduced the volume or the object reduced the volume contacts a heating element, a heating element deteriorates, exchange of a chip and a heating element is brought forward in endurance, and a cost rise is not avoided.
[0004] The object of this invention is to offer the electric resistance type dry distillation reduction furnace at which dry distillation reduction can be made to perform efficiently at cheap cost.
[0005] Other objects of this invention are to offer the electric resistance type dry distillation reduction furnace which can burn the carbonization gas which occurred with dry distillation of the object reduced the volume.
[0006]
[Means for Solving the Problem] An electric-resistance type dry-distillation reduction furnace according to claim 1 considered as the configuration which consists of a dry-distillation room formed with the heat-resistant insulation container which uses the side attachment wall of one side of the side attachment walls which consist of a heat-resistant insulating material which arranges an electrode board to one opposed face of a heat-resistant insulation container , respectively , and forms an opposed face of another side , or both as the side attachment wall in which heat transfer is possible , and uses as one side attachment wall the side attachment wall in which the heat transfer of the heating element which filled up the interior with the particle of carbon matter , and said heating element is possible .
[0007] When objects reduced the volume, such as a kitchen garbage, are thrown into a dry distillation room and voltage is applied between two electrodes of a heating element, current will pass along between particle layers of carbon matter by such electric resistance type dry distillation reduction furnace of a configuration from one electrode board, and will flow to an electrode board of another side at it. If current flows in a particle layer of carbon matter, in a certain portion, spark discharge will occur

and the high Joule's heat will occur into the portion by high contact resistance in a certain portion at a point of contact of a particle comrade of carbon matter. Moreover, the Joule's heat by current and specific resistance generates the particle of carbon matter itself, and, as for a layer of a particle of carbon matter, these become ****** with an elevated temperature, and high pyrexia is produced.
[0008] It lets a side attachment wall in which heat transfer of a heating element into which it divides between a dry distillation room and a heating element is possible pass, temperature up is carried out in itself to said elevated temperature produced with a heating element by pyrexia in response to radiant heat, moisture evaporates first, then temperature of a dryer part rises, and an object thrown into said dry distillation room reduced the volume reaches pyrolysis temperature, and causes gasification decomposition. This operation advances one after another inside an object reduced the volume, gasification matter disappears, and a char which is finally a carbon content remains.
[0009] An electric resistance type dry distillation reduction furnace according to claim 2 was considered as a configuration which formed a free passage hole which opens a dry distillation room for free passage in a heating element in a side attachment wall in which heat transfer of a heating element which forms one side attachment wall of a heat-resistant insulation container used as a dry distillation room is possible.
[0010] Since radiant heat will be transmitted to a dry-distillation room through a free passage hole by said elevated temperature and pyrexia produced with a heating element through a free passage hole formed in a side attachment wall in which heat transfer of a heating element into which a heating element and a dry-distillation room are divided with such an electric-resistance type dry-distillation reduction furnace of a configuration is possible and the generated high temperature is more efficiently transmitted to a dry-distillation room with a heating element, the temperature up of the dry-distillation interior of a room improves, and gasification disassembly of the object reduced the volume is promoted. On the other hand, although carbonization gas which occurred by gasification disassembly of an object reduced the volume enters in a heating element through said free passage hole, passes the particle layer of carbon matter used as said elevated temperature and flows to up space, since carbonization gas is heated in a process in_which a particle layer of hot carbon matter is passed, serves as an elevated temperature and flows to up space, it causes combustion and is discharged as combustion gas by contacting air here.
[0011] An electric resistance type dry distillation reduction furnace according to claim 3 was considered as a configuration which prepared a heating element which has arranged an electrode board to one opposed face of a heat-resistant insulation container at a pars basilaris ossis occipitalis of a heat-resistant insulation container used as said dry distillation room, respectively, and filled up the interior with a particle of carbon matter.
[0012] At such an electric resistance type dry distillation reduction furnace of a configuration, radiant heat will also be transmitted to a dry distillation room through a pars basilaris ossis occipitalis of a dry distillation room by an elevated temperature and pyrexia which were produced with a heating element in a pars basilaris ossis occipitalis of a dry distillation room, temperature up of the dry distillation interior of a room improves, and gasification disassembly of an object reduced the volume is promoted.
[0013] An electric resistance type dry distillation reduction furnace according to claim 4 was considered as a configuration which formed in a pars basilaris ossis occipitalis of a dry distillation room according to claim 3 a free passage hole which opens the inside of a heating element of a lower part of a dry distillation room and a dry distillation room for free passage.
[0014] At such an electric resistance type dry distillation reduction furnace of a configuration, radiant heat will be more efficiently transmitted to a dry distillation room through a free passage hole by an elevated temperature and pyrexia which were produced with a heating element of a lower part of a dry distillation room, temperature up of the dry distillation interior of a room improves, and gasification disassembly of an object reduced the volume is promoted further.
[0015]
[Embodiment of the Invention] Drawing 1 shows an example of the gestalt of the operation in the electric resistance type dry distillation reduction furnace concerning this invention.

[0016] In a drawing, 1 is a heating element. This heating element 1 in this example The electrode boards 3a and 3b of the positive/negative made from carbon are arranged, respectively to one opposed face of the heat-resistant insulation container 2 made from a ceramic. one side-attachment-wall 4a of the side attachment walls 4a and 4b which consist of a heat-resistant insulating material which forms the opposed face of another side -- the side attachment wall 5 in which heat transfer is possible -- carrying out -- the interior -- the particle 6 of the carbon matter -- being filled up -- the outside surface of said electrode boards 3a and 3b -- energization -- it has structure which connected Conductors 7a and 7b.
[0017] As said carbon matter, although processing charcoal, such as charcoal, coal, activated carbon, and corks, is used, charcoal is used by this example. The magnitude of the particle 6 of the carbon matter is about 5-20mm.
[0018] 8 is a dry distillation room and this dry distillation room 8 is formed with the heat-resistant insulation container 9 which uses as one side attachment wall the side attachment wall 5 in which the heat transfer of said heating element 1 is possible.
[0019] Thus, since it constituted, when voltage is applied between two-electrodes board 3a which the heat-resistant insulation container 2 which forms a heating element 1 counters, and 3b, current will pass along between six layers of particles of the carbon matter from one electrode board 3a, and will flow to electrode board 3b of another side. If current flows to six layers of particles of the carbon matter, in a certain portion, spark discharge will occur and the high Joule's heat will occur into the portion by high contact resistance in a certain portion at the point of contact of particle 5 comrade of the carbon matter. Moreover, the Joule's heat by current and specific resistance also generates particle 6 self of the carbon matter, and, as for the layer of the particle 6 of the carbon matter, these become ****** with an elevated temperature, and high pyrexia is produced.
[0020] If the objects reduced the volume, such as a kitchen garbage, are thrown into said dry distillation room 8 and voltage is applied between said electrode board 3a and 3b, then, the object thrown into the dry distillation room 8 reduced the volume It lets the side attachment wall 5 in which the heat transfer of the heating element 1 into which it divides between the dry distillation room 8 and a heating element 1 is possible pass, temperature up is carried out in itself to said elevated temperature produced with the heating element 1 by pyrexia in response to radiant heat, moisture evaporates first, then the temperature of a dryer part rises, pyrolysis temperature is reached, and gasification decomposition is caused. This operation advances one after another inside the object reduced the volume, the gasification matter disappears, and the char which is finally a carbon content remains. This char is reusable as a heat source object.
[0021] Drawing 2 shows the other examples of the gestalt of the operation in the electric-resistance type dry-distillation reduction furnace concerning this invention, makes all of the side attachment walls 4a and 4b which consist of a heat-resistant insulating material which forms the opposed face of another side of said heating element 1 the side attachment wall 5 in which heat transfer is possible, and forms a dry-distillation room 8 in the both sides of a heating element 1 in this example with the heat-resistant insulation container 9 which uses the side attachment wall 5 in which this heat transfer is possible, and the becoming side attachment walls 4a and 4b as one side attachment wall.
[0022] Since it constituted, if voltage is applied between two-electrodes board 3a which the heat-resistant insulation container 2 which forms a heating element 1 counters, and 3b, thus, the object thrown into the dry distillation room 8 of the both sides of a heating element 1 reduced the volume It lets the dry distillation room 8, the side attachment wall 5 in which the heat transfer of the heating element 1 into which it divides between heating elements 1 is possible, and becoming side-attachment-wall 4a and four b1 side attachment wall pass. In response to radiant heat, temperature up is carried out in itself to said elevated temperature produced with the heating element 1 by pyrexia, moisture evaporates first, then the temperature of a dryer part rises, pyrolysis temperature will be reached, gasification decomposition will be caused, and dry distillation reduction of the object of a large quantity reduced the volume can be carried out efficiently.
[0023] Drawing 3 is what shows the other examples of the gestalt of the operation in the electric resistance type dry distillation reduction furnace concerning this invention. In this example The dry

distillation room 8 is formed with the heat-resistant insulation container 9 which prepares said four heating elements 1, uses one side-attachment-wall 4a of the side attachment walls 4a and 4b which consist of a heat-resistant insulating material which forms the opposed face of another side of each heating element 1 as the side attachment wall 5 in which heat transfer is possible, and uses as a side attachment wall on all sides the side attachment wall 5 in which the heat transfer of each of this heating element 1 is possible.

[0024] Thus, since it constituted, if voltage is applied between two-electrodes board 3a which the heat-resistant insulation container 2 which forms each heating element 1 counters, and 3b The object thrown into the dry distillation room 8 formed by the side attachment wall 5 in which the heat transfer of each heating element 1 is possible reduced the volume a side attachment wall on all sides It will let the side attachment wall 5 in which heat transfer on all sides is possible pass, said elevated temperature and pyrexia which were produced with each heating element 1 will receive radiant heat from a four way type, own temperature up of the object [reduced the volume] is promoted, and shortening of the dry distillation reduction time amount of the object reduced the volume can be attained.

[0025] If it is in the example of a gestalt of each operation shown in aforementioned drawing 1 , drawing 2 , and drawing 3 , the lid (not shown) which consists of a heat-resistant insulating material is put on a heating element 1 and each up opening of the dry distillation room 8, and the periphery of a heating element 1 and the dry distillation room 8 is covered with the heat insulator (not shown). Moreover, the exhaust passage (not shown) which discharges the carbonization gas which occurred by dry distillation of the object reduced the volume at the dry distillation room 8 is established in the upper part of the dry distillation room 8.

[0026] Drawing 4 and drawing 5 formed the free passage hole 10 which opens the dry distillation room 8 for free passage in a heating element 1 on the side attachment wall 5 in which the heat transfer of the both sides of a heating element 1 is possible in the example of a gestalt of operation which shows the other examples of the gestalt of the operation in the electric resistance type dry distillation reduction furnace concerning this invention, and is shown in said drawing 2 . The lid 11 which consists of a heat-resistant insulating material is put on opening of said dry distillation room 8, and the periphery of a heating element 1 and the dry distillation room 8 is covered with the heat insulator 12. Moreover, the space used as a combustion chamber 13 is formed in the upper part of a heating element 1. This combustion chamber 13 is open for free passage with the exterior.

[0027] Thus, radiant heat will be transmitted to the dry distillation room 8 through the free passage hole 10 by said elevated temperature and pyrexia which were produced with the heating element 1 through the free passage hole 10 formed in the side attachment wall 5 in which the heat transfer of the heating element 1 into which a heating element 1 and the dry distillation room 8 are divided is possible since it constituted. Since the high temperature produced with the heating element 1 is more efficiently transmitted to the dry distillation room 8, the temperature up in the dry distillation room 8 improves, and gasification disassembly of the object reduced the volume is promoted. On the other hand, although the carbonization gas which occurred by gasification disassembly of the object reduced the volume enters in a heating element 1 through said free passage hole 10, passes six layers of particles of the carbon matter used as said elevated temperature and flows combustion chamber 13 in the upper part Since carbonization gas is heated in the process in which six layers of particles of the hot carbon matter are passed, serves as an elevated temperature and flows to a combustion chamber 13, by contacting air here, combustion is caused and it is discharged as combustion gas.

[0028] Although the free passage hole 10 which opens the dry-distillation room 8 for free passage in a heating element 1 on the side attachment wall 5 in which the heat transfer of the heating element 1 in the example of a gestalt of operation shown in drawing 2 is possible forms in this example, the free passage hole 10 which opens the dry-distillation room 8 for free passage in a heating element 1 on the side attachment wall 5 in which the heat transfer of the heating element 1 in the example of a gestalt of operation shown in drawing 1 and drawing 3 is possible may form, and the same operation as this example is acquired.

[0029] drawing 6 have form the heating element 16 which have arrange the electrode boards 3a and 3b

to one opposed face of the heat-resistant insulation container 15, respectively, and filled up the pars basilaris ossis occipitalis 14 of the heat-resistant insulation container 9 used as the dry distillation room 8 with the particle 6 of the carbon matter inside in the example of a gestalt of operation which show the other examples of the gestalt of the operation in the electric resistance type dry distillation reduction furnace concerning this invention, and be show in said drawing 3 . Thus, since it constituted, radiant heat will also be transmitted to the dry distillation room 8 through the pars basilaris ossis occipitalis 14 of the dry distillation room 8 by the elevated temperature and pyrexia which were produced with the heating element 16 in the pars basilaris ossis occipitalis 14 of the dry distillation room 8 formed with the heat-resistant insulation container 9, the temperature up in the dry distillation room 8 improves, and gasification disassembly of the object reduced the volume is promoted.

[0030] Although the heating element 16 is formed in the pars basilaris ossis occipitalis 14 of the dry distillation room 8 in the example of a gestalt of operation shown in drawing 3 in this example, a heating element 16 may be formed in the pars basilaris ossis occipitalis of the dry distillation room 8 in the example of a gestalt of operation shown in drawing 1 and drawing 2 , and the same operation as this example is acquired.

[0031] Drawing 7 formed in the pars basilaris ossis occipitalis 14 of the heat-resistant insulation container 9 used as the dry distillation room 8 the free passage hole 17 which opens the inside of the heating element 16 of the lower part of the dry distillation room 8 and the dry distillation room 8 for free passage in the example of a gestalt of operation which shows the other examples of the gestalt of the operation in the electric resistance type dry distillation reduction furnace concerning this invention, and is shown in said drawing 6 .

[0032] Thus, since it constituted, radiant heat will be more efficiently transmitted to the dry distillation room 8 through the free passage hole 17 by the elevated temperature and pyrexia which were produced with the heating element 16 of the lower part of the dry distillation room 8, the temperature up in the dry distillation room 8 improves, and gasification disassembly of the object reduced the volume is promoted further.

[0033] Although the free passage hole 17 which opens the inside of the heating element 16 of the lower part of the dry distillation room 8 and the dry distillation room 8 for free passage is formed in the pars basilaris ossis occipitalis 14 of the dry distillation room 8 in the example of a gestalt of operation shown in drawing 6 in this example A heating element 16 may be formed in the pars basilaris ossis occipitalis of the dry distillation room 8 in the example of a gestalt of operation shown in drawing 1 and drawing 2 , the free passage hole which opens the inside of the heating element 16 of the lower part of the dry distillation room 8 and the dry distillation room 8 for free passage at this pars basilaris ossis occipitalis may be formed, and the same operation as this example is acquired.

[0034]

[Effect of the Invention] According to the electric resistance type dry distillation reduction furnace which starts this invention as mentioned above, since the particle of the carbon matter is made into the source of pyrexia of a heating element, combustion processing of the carbonization gas which could be made to perform dry distillation reduction efficiently at cheap cost, and occurred with dry distillation of the object reduced the volume can be carried out easily.

[Translation done.]

* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] The electric-resistance type dry-distillation reduction furnace which consists of a dry-distillation room formed with the heat-resistant insulation container which uses the side attachment wall of one side of the side attachment walls which consist of a heat-resistant insulating material which arranges an electrode board to one opposed face of a heat-resistant insulation container, respectively, and forms an opposed face of another side, or both as a side attachment wall in which heat transfer is possible, and uses as one side attachment wall the side attachment wall in which heat transfer of a heating element which filled up the interior with a particle of carbon matter, and said heating element is possible.
[Claim 2] An electric resistance type dry distillation reduction furnace of ******** 1 publication in which a free passage hole which opens a dry distillation room for free passage in a heating element on a side attachment wall in which heat transfer of a heating element which forms one side attachment wall of a heat-resistant insulation container used as a dry distillation room is possible was formed.
[Claim 3] An electric resistance type dry distillation reduction furnace according to claim 1 or 2 in which a heating element which has arranged an electrode board to one opposed face of a heat-resistant insulation container at a pars basilaris ossis occipitalis of a heat-resistant insulation container used as a dry distillation room, respectively, and filled up the interior with a particle of carbon matter was prepared.
[Claim 4] An electric resistance type dry distillation reduction furnace according to claim 3 which formed in a pars basilaris ossis occipitalis of a heat-resistant insulation container used as a dry distillation room a free passage hole which opens the inside of a heating element of a lower part of a dry distillation room and a dry distillation room for free passage.

[Translation done.]